

U. S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901

August 18, 1999

STATEMENT OF BASIS

DRAFT

Authorization to Discharge under the
National Pollutant Discharge Elimination System
for the
University of Guam Marine Laboratory

NPDES Permit No. GU 0020168

These pages contain information concerning the draft National Pollutant Discharge Elimination System (NPDES) permit for the University of Guam Marine Laboratory discharge.

I. SUMMARY

In accordance with the authorities vested in Section 402 of the Clean Water Act (CWA), the U. S. Environmental Protection Agency, Region 9 (hereinafter USEPA Region 9) is proposing issuance of a NPDES permit to the University of Guam Marine Laboratory (hereinafter permittee) for the discharge of aquaria circulation water effluent from the University of Guam Marine Laboratory seawater system to receiving waters named Pago Bay, of the Pacific Ocean. The marine laboratory outfalls discharge within territorial waters of the Territory of Guam; however, because the Guam Environmental Protection Agency (GEPA) has not been delegated primary regulatory responsibility for administering the NPDES permitting program, USEPA Region 9 has primary regulatory responsibility for the discharge. USEPA Region 9 is proposing to issue a NPDES permit incorporating both federal CWA and Guam water quality requirements.

II. ADMINISTRATIVE PROCESS

The administrative processing of a NPDES application consists of the following actions:

- A. Filing of a timely and complete application by the permittee;
- B. Comparison of the application with standards and criteria set forth in the statute and regulations, and preparation of a draft NPDES permit by USEPA Region 9 staff; and initial screening of the application by the Territory;

- C. Public notice of a draft NPDES permit by USEPA Region 9;
- D. Public hearings (if needed) to address public interest;
- E. Territory concurrence in the issuance of a NPDES permit (through CWA Section 401 water quality certification); or denial by the Territory.
- F. Processing of appeals, in accordance with 40 CFR 124, Subpart E, by USEPA Region 9.

III. DRAFT PERMIT DECISION

On August 3, 1998, the permittee submitted an application for renewal of its existing NPDES permit. This statement of basis sets forth the principal facts and significant legal, methodological, and policy questions considered in the development of the draft permit. The draft permit is based on the Administrative Record.

IV. FACILITY DESCRIPTION

The permittee presently operates the University of Guam Marine Laboratory located on the eastern shore of the island of Guam in Mangilao. The permittee has recently expanded the E-lanai to provide extra space for aquaria. In order to supply these additional aquaria with seawater, the capacity of seawater pumps will increased from 0.288 million gallons per day (mgd) to 0.432 mgd during this permit term. In conjunction with this planned expansion, seawater system discharge lines were also modified. Discharge Serial No. 001 continues to discharge seawater from the W-lanai while new Discharge Serial No. 002 (located approximately 200 feet from Discharge Serial No. 001) discharges seawater from the E-lanai extension. Each outfall discharges approximately 0.216 mgd.

Based on data provided by the permittee, the discharge has the following characteristics for total suspended solids and pH:

Discharge Parameter	Units	Annual Average (01-10/1998)
Flow	MGD	0.0288
Total Suspended Solids (TSS)	mg/l	3.9
pH	units	8.2

Aquaria circulation water effluent from the seawater system is discharged to Category M-2 (Good) receiving waters named Pago Bay, of the Pacific Ocean. (Category M-2 waters must be of sufficient quality to allow for the propagation and survival of marine waters, particularly

shellfish, corals, and other reef related resources. Other important and intended uses include mariculture activities, aesthetic enjoyment and compatible recreation inclusive of whole body contact and related activities.) Discharge points are described as follows:

Discharge Serial Number	North Latitude	East Longitude	Description
001	13° 25' 36" N	144° 47' 44" E	Pago Bay of the Pacific Ocean. New Discharge Serial No. 002 is located approximately 200 feet from existing Discharge Serial No. 001.
002	13° 25' 36" N	144° 47' 44" E	

The discharge is currently regulated under NPDES Permit No. GU 0020168, issued October 2, 1992. This permit expired October 8, 1997.

V. DISCHARGE LIMITATIONS AND OTHER PERMIT REQUIREMENTS

If national treatment standards for a discharge category have not been developed by the U. S. Environmental Protection Agency, then the permitting authority must evaluate treatment technologies applicable to the discharge using Best Professional Judgement (BPJ) (see 40 CFR 125.3). The previous permit contains discharge limitations (in mg/L) for total suspended solids based on BPJ established by USEPA Region 9 in 1992. The updated BPJ requirements for total suspended solids (in lbs/day) contained in the draft permit are necessary to assure no violation of applicable treatment standards and are consistent with Section 402(o)(2) of the CWA.

The *Revised Guam Water Quality Standards* (WQS), amended and adopted on January 2, 1992, contain water quality standards (categories and criteria) for waters of the Territory. In accordance with 40 CFR 122.44(d), the need for discharge limitations based on water quality criteria in applicable WQS must be evaluated. As part of this evaluation, projected receiving water values--based on reported maximum discharge values (expressed in units of concentration)--are compared to appropriate water quality criteria to determine the "reasonable potential" for criteria exceedances and the need for discharge limitations. Because this discharge has not been granted a mixing zone by GEPA, dilution (expressed as parts seawater per part wastewater) is not considered in this evaluation and projected receiving water values are calculated using the following steady state equation: $C_r = C_e$. "Ce" is the reported maximum discharge value (in mg/l or ug/l) and "Cr" is the projected receiving water value which is compared to the appropriate water quality criterion. The proposed discharge limitation for pH was established by USEPA Region 9 in the previous permit and, consistent with federal antibacksliding requirements in Section 402(o)(2) of the CWA and 40 CFR 122.44 (l)(1), is continued in the draft permit. Other receiving water quality requirements contained in the draft permit are necessary to assure no violation of applicable WQS in Category M-2 receiving waters of Pago Bay influenced by the discharge.

To summarize, the draft permit contains the following discharge limitations for total suspended

solids and pH:

Discharge Limitations			
Discharge Parameter	Average Monthly	Maximum Daily	Units
Total Suspended Solids	n/a 22.3	15 n/a	mg/L lbs/day
pH	Not less than 7.0 units nor greater than 9.0 units.		units

The proposed discharge limitation for total suspended solids (in mg/L) and pH is based on BPJ established by USEPA Region 9 in 1992. The proposed discharge limitation for total suspended solids (in lbs/day) is based on the reported minimum treatment system performance of 12.4 mg/L and an average flow of 0.216 mgd and the following equation: $8.34 \times 12.4 \text{ mg/L} \times 0.216 \text{ mgd}$.

In addition to monitoring the parameters with discharge limitations shown above, the draft permit proposes discharge monitoring requirements for nutrients, salinity, and temperature. Influent monitoring for these parameters is not required because monitoring data indicate that the discharge easily meets applicable WQS. The draft permit also contains a discharge monitoring requirement for whole effluent toxicity (acute) and conditions which trigger additional acute toxicity monitoring and/or a toxicity reduction evaluation (TRE) should the presence of acute toxicity be indicated. Consistent with applicable WQS, the draft permit proposes a “no acute toxicity” discharge value (the trigger) in 100 percent effluent which is evaluated using a single-concentration toxicity test result (reported as pass/fail), rather than a multi-concentration test result (reported as a point estimate, e.g., LC_{50}). While this approach does not yield information regarding the level of toxicity present in the diluted effluent, USEPA Region 9 believes that this approach provides a reasonable balance between the need for reasonable discharge monitoring and cost savings resulting from the use of single-concentration rather than multi-concentration testing. If toxicity (as defined) is detected, then additional multi-concentration testing may be recommended by USEPA Region 9.

Finally, although monitoring data provided by the permittee do not indicate the discharge of pollutants causing toxicity, the draft permit proposes that the permittee develop and implement a standard operating plan (SOP) to prevent/minimize the discharge of such pollutants from the permitted facility into Pago Bay. The SOP would include Best Management Practices (BMPs) for the operation and maintenance of the seawater system; descriptions of the application of effluent treatment technologies; management practices regarding the seawater system (including animal aquaria) cleaning procedures; animal feeding practices; and a chemical/other deleterious substance management plan. This requirement is necessary to assure proper operation of all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit (see 40 CFR 122.41(e)).

VI. WRITTEN COMMENTS

Interested persons are invited to submit written comments on the draft permit and statement of basis. Comments should be submitted by September 20, 1999, either in person or by mail to the attention of Robyn Stuber at USEPA Region 9 and to GEPA:

U. S. Environmental Protection Agency
Region 9, WTR-5
75 Hawthorne Street
San Francisco, CA 94105-3901

Administrator
Guam Environmental Protection Agency
P. O. Box 22439-GMF
Barrigada, GU 96921
Telephone: 671/475-1658

VII. INFORMATION AND COPYING

Persons wishing further information may write to the above address or call Robyn Stuber of USEPA Region 9 at (415)744-1921. Copies of materials in the Administrative Record (other than those which USEPA Region 9 maintains as confidential) are available at the USEPA Region 9 office for inspection and copying between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday (excluding holidays).

